

## **II. Remarks**

### **A. Status of the Claims**

Claims 1-30 have been canceled without prejudice for filing in a continuation application. Claims 31-46 are added. Claims 31-46 are pending.

Support for language of added claims is found in the claims as originally filed as follows.

| New Claim No. | Now Canceled Claim No. |
|---------------|------------------------|
| 31.           | 17                     |
| 32.           | 4                      |
| 33.           | 14                     |
| 34.           | 5                      |
| 35.           | 6                      |
| 36.           | 8                      |
| 37.           | 20                     |
| 38.           | 12                     |
| 39.           | 22 + 4                 |
| 40.           | 23                     |
| 41.           | 24                     |
| 42.           | 25                     |
| 43.           | 26                     |
| 44.           | 27                     |
| 45.           | 28                     |
| 46.           | 30                     |

Support for language of Claim 43 is further found at page 17, lines 1-6 of the specification. No new matter has been added to the application by the added claims.

### **B. Rejection of Claim 9 under 35 U.S.C. § 112, Second Paragraph**

#### **Office Action**

Claim 9 was rejected as indefinite for lack of clarity as to which process step is being positively claimed. Office Action at page 2.

#### **Response**

Claim 9 has not been repeated in added Claims 31-46. Applicants submit that the added claim language satisfies the requirements of 35 U.S.C. § 112, second paragraph, and respectfully request that the rejection be withdrawn.

**C. Rejection of Claims 14-17 under 35 U.S.C. § 102(b)**

**Office Action**

The Action states a rejection of Claims 14-17 under 35 U.S.C. § 102(b) as anticipated by either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731). Office Action at page 2.

**Response**

Claims 14 and 17 correspond to added Claims 33 and 31, respectively. To anticipate a claim, each and every element of the claim must be found in a single prior art reference. MPEP § 2131. Neither Berchem or Trumpler teach an apparatus comprising a ball mill including disrupting particles that are not substantially spherical and comprise screw-bits, cone balls, pins, or non-spherical shot. Neither Berchem or Trumpler teach an apparatus comprising a ball mill including disrupting particles that are substantially spherical, which have been roughened prior to use.

Therefore, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) be withdrawn.

**D. Rejection of Claims 18 and 19 under 35 U.S.C. §103(a)**

**Office Action**

The Action states a rejection of Claims 18-19 under 35 U.S.C. § 103(a) as unpatentable over either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) in view of either DeStefano *et al.* (U.S. 5,829,696) or Rajasekaran (U.S. 5,390,859). Office Action at pages 2-3.

**Response**

Added Claims 31-46 do not recite language of Claims 18 and 19. Applicants therefore respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn.

**E. Rejection of Claim 20 under 35 U.S.C. §103(a)**

**Office Action**

The Action states a rejection of Claim 20 under 35 U.S.C. § 103(a) as unpatentable over either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) in view of Boecker *et al.* (U.S. 4,775,393). Office Action at page 3.

**Response**

Former Claim 20 is rewritten as Claim 37. Neither Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) teach a ball mill including a vial with an internal grill configured to contribute to disruption. Applicants submit that the polyurethane coated disks 24 of Boecker *et al.* are mounted on shaft 22 which is rotated in order to facilitate grinding (see column 6, lines 14-19). As shown by FIG. 8 of the instant application and described by the figure legend at page 11, lines 4-8, Applicants' claimed embodiment includes a vial with an internal grill. The combinations of either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) in view of Boecker *et al.* therefore fail to teach each element of the claimed invention. Applicants therefore respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn.

**F. Rejection of Claims 26-30 under 35 U.S.C. §103(a)**

**Office Action**

The Action states a rejection of Claims 26-30 under 35 U.S.C. § 103(a) as unpatentable over Tomes *et al.* (U.S. 5,921,477). Office Action at page 3.

**Response**

Former Claims 26-28 and 30 have been rewritten as Claims 43-46. Applicants submit that Tomes *et al.* teach or suggest nothing regarding size of agitation members 60 other than 5/32 inch copper or stainless steel balls (column 4, lines 5-7), a size that is less than 4 mm. Therefore, Tomes *et al.* do not teach or suggest all elements of the claimed invention. Applicants therefore respectfully request that the rejection over Tomes *et al.* be withdrawn.

**G. Rejection of Claims 1-4, 7-9, 22, and 23 under 35 U.S.C. §103(a)**

**Office Action**

The Action states a rejection of Claims 1-4, 7-9, 22, and 23 under 35 U.S.C. § 103(a) as unpatentable over Tomes *et al.* (U.S. 5,921,477) in view of either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731). Office Action at pages 3-4.

## Response

Former Claim 4 corresponds to added Claim 32. Applicants submit that Tomes *et al.* teach or suggest nothing regarding a method comprising disrupting a biological sample in a ball mill loaded with disrupting particles that are not substantially spherical and comprise screw-bits, cone balls, pins, or non-spherical shot. Berchem (U.S. 4,634,062) teaches grinding elements assuming a pyramid or double pyramid form or a cubic shape (col. 2, lines 14-16). Trumpler (U.S. 2,069,731) teach sharp edged disintegrating elements with projecting corners in a process for dividing viscous masses.

Applicants submit that, even if combined, the combination of Tomes *et al.* in view of either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) therefore fails to teach each element of the invention as set forth by Claim 32. Applicants therefore respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied to Claim 32.

Former Claim 8 corresponds to added Claim 36. Applicants submit that Tomes *et al.* teach or suggest nothing regarding a method of increasing a yield of nucleic acids from the biological sample comprising disrupting the sample in a ball mill loaded with disrupting particles that are not substantially spherical instead of substantially-spherical disrupting particles of about the same size and density wherein increasing the yield comprises increasing a 28S/18S ratio. Berchem (U.S. 4,634,062) teaches grinding elements assuming a pyramid or double pyramid form or a cubic shape (col. 2, lines 14-16). Trumpler (U.S. 2,069,731) teach sharp edged disintegrating elements with projecting corners in a process for dividing viscous masses.

Applicants submit that, even if combined, the combination of Tomes *et al.* in view of either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) therefore fails to teach each element of the invention as set forth by Claim 36. Applicants therefore respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied to Claim 36.

Former Claim 22 together with former Claim 4 corresponds to added Claim 39. Former Claim 23 corresponds to added Claim 40, which claim is dependent upon Claim 39. Applicants submit that Tomes *et al.* teach or suggest nothing regarding a kit comprising (1) disrupting particles (a) that are not substantially spherical wherein the particles comprise screw-bits, cone balls, pins, or non-spherical shot or (b) that are substantially spherical, which have been roughened prior to use; and (2) a lysis buffer for biological samples. Berchem (U.S. 4,634,062) teaches grinding elements assuming a pyramid or double pyramid form or a cubic shape (col. 2, lines 14-16). Trumpler (U.S. 2,069,731) teach sharp edged disintegrating elements with projecting corners in a process for dividing viscous masses.

Applicants submit that, even if combined, the combination of Tomes *et al.* in view of either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) therefore fails to teach each element of the invention as set forth by Claim 39. An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends. Therefore, a dependent claim is allowable when the claim from which it depends is allowable. Applicants therefore respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied to Claims 39 and 40.

#### **H. Rejection of Claims 5, 6, 10, 11, and 24 under 35 U.S.C. §103(a)**

##### **Office Action**

The Action states a rejection of Claims 5, 6, 10, 11, and 24 under 35 U.S.C. § 103(a) as unpatentable over Tomes *et al.* (U.S. 5,921,477) in view of either Berchem (U.S. 4,634,062) or Trumpler (U.S. 2,069,731) and further in view of either DeStefano *et al.* (U.S. 5,829,696) or Rajasekaran (U.S. 5,390,859). Office Action at page 4.

##### **Response**

Former Claims 5 and 6 have been rewritten as added Claims 34 and 35, which claims are directly or indirectly dependent upon Claim 33 (former Claim 14). An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends. Therefore, a dependent claim is allowable when the claim from which it depends is allowable. Applicants submit that Claim 33 (former Claim 14) is patentable over this combination of references. Applicants therefore respectfully submit that dependent Claims 34

and 35 are patentable also and request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied thereto.

Former Claim 24 corresponds to added Claim 41, which claim is indirectly dependent upon Claim 39 (corresponding to former Claim 22 together with former Claim 4). An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends. Therefore, a dependent claim is allowable when the claim from which it depends is allowable. Applicants submit that Claim 39 (former Claim 22 together with Claim 4) is patentable over this combination of references. Applicants therefore respectfully submit that dependent Claim 41 is patentable also and request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied thereto.

#### **I. Rejection of Claims 12 and 25 under 35 U.S.C. §103(a)**

##### **Office Action**

The Action states a rejection of Claims 12 and 25 under 35 U.S.C. § 103(a) as unpatentable over *Tomes et al.* (U.S. 5,921,477) in view of either *Berchem* (U.S. 4,634,062) or *Trumpler* (U.S. 2,069,731) and further in view of *Boecker et al.* (U.S. 4,775,393). Office Action at page 4.

##### **Response**

Former Claim 12 has been rewritten as added Claim 38, which claim is dependent upon Claim 37 (former Claim 20). An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends. Therefore, a dependent claim is allowable when the claim from which it depends is allowable. Applicants submit that Claim 37 (former Claim 20) is patentable over this combination of references. Applicants therefore respectfully submit that dependent Claim 38 is patentable also and request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied thereto.

Former Claim 25 corresponds to added Claim 42, which claim is indirectly dependent upon Claim 39 (corresponding to former Claim 22 together with former Claim 4). An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends. Therefore, a dependent claim is allowable when the claim from which it depends is allowable. Applicants submit that Claim 39 (former Claim 22 together with Claim 4) is patentable over this combination of references. Applicants therefore respectfully submit that

dependent Claim 42 is patentable also and request that the rejection under 35 U.S.C. § 103(a) be withdrawn as it may be applied thereto.

**J. Conclusion**

Applicant believes that the foregoing remarks fully respond to all outstanding matters for this application. Reconsideration is respectfully requested.

Should there be any questions or comments regarding this document, the Examiner is invited to contact Applicants' representative, Gloria L. Norberg at 512-721-3654 for discussion.

Respectfully submitted,

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